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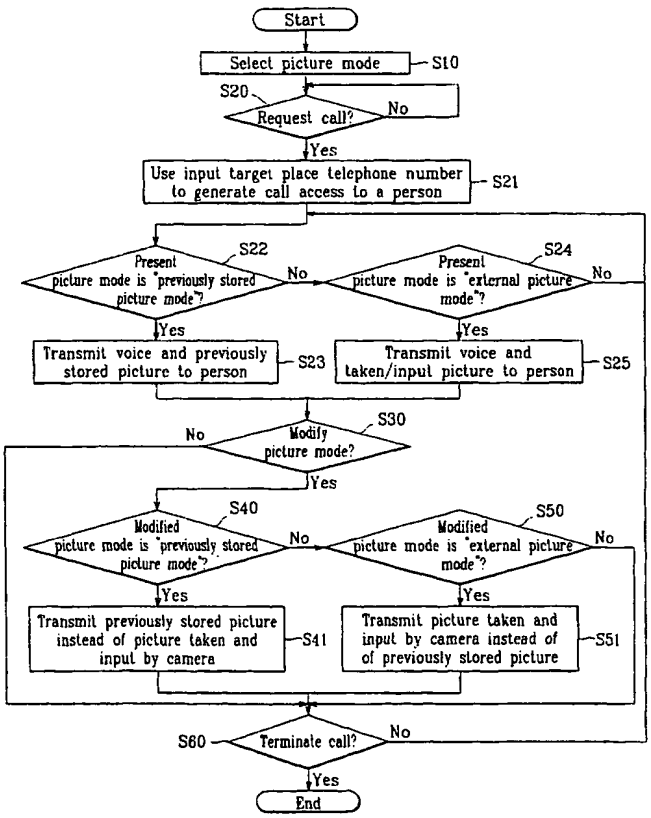
(54) **Title:** VISUAL MODE MOBILE PHONE AND VISUAL MODE TELEPHONING METHOD USING SAME



(57) **Abstract:** Disclosed is a visual mode mobile phone and visual mode telephoning method using the same for selecting an image to be transmitted according to a user's desired image mode and transmitting the selected image to a target mobile phone. The method comprises: checking a selected image mode among the image modes for the visual mode mobile phone; and transmitting previously stored moving pictures or still images according to the checked image mode. According to the present invention, the user previously takes pictures and stores them, and transmits desired images to the target mobile phone when the user is calling someone. Therefore, the present invention increases pleasure of visual mode telephoning, and in the case it is difficult for the user to transmit an image taken in real time using a camera, the present invention does not generate displeasure to the other person.

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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

Visual Mode Mobile Phone and Visual Mode Telephoning Method using Same

BACKGROUND OF THE INVENTION

(a) Field of the Invention

The present invention relates to a visual mode mobile phone, and a visual mode telephoning method using the same. More specifically, the present invention relates to a visual mode mobile phone for transmitting different transmission pictures to another person's mobile phone according to a selection of picture modes by a user.

(b) Description of the Related Art

Subscribers of the CDMA mobile phones in Korea have increased more than 30% of the total Koreans population, and the CDMA type mobile phones provide communication functions through voice and text messages, but they do not currently transmit images to the subscribers. Hence, the prior art do not satisfy those who desire to call watching the other person.

To solve this problem, the IMT-2000, a next generation communication method for enabling voice, video, and data communication has been proposed, and it has now reached the stage of development completion. The data transmission speed of IMT-2000 covers from 144 to 384kbps in the move stage, and it covers up to 2Mbps in the stay stage, thereby providing a high-speed multimedia (including voices, data, and

images) service. Therefore, the user uses a camera that is attachable to/removable from the mobile phone or already installed therein to photograph the caller's face in real-time and transmit the shot to a mobile phone of the other person who is on the line, and the user checks an image transmitted from the other person's mobile phone through an LCD of the user's mobile phone so that they may call watching each other's face.

However, since the user can move to any place carrying the mobile phone with him in the above-noted video call method provided through the mobile phone, the user may sometimes be indecent when attempting to make a phone call or answer it. In this instance, if the user transmits a taken picture to the other person, the same may feel upset, and this may not be good for telephone etiquette.

SUMMARY OF THE INVENTION

It is an object of the present invention to provide a visual mode mobile phone for a caller to transmit a different picture to another person instead of a taken picture while calling the other person using a mobile phone, when the caller desires.

In one aspect of the present invention, a visual mode mobile phone comprises: a storage unit for storing moving pictures or still pictures; an picture mode selector for selecting one of the stored pictures and taken and input pictures; and a transmitter for transmitting one of the stored pictures

and the taken and input pictures to another person's communication terminal according to the selected picture mode.

In another aspect of the present invention, a visual mode telephoning method using a mobile phone comprises: checking a selected picture mode from picture modes of a visual mode mobile phone; and transmitting a previously stored moving picture or a still picture according to the checked picture mode.

In still another aspect of the present invention, a visual mode telephoning method using a mobile phone comprises: checking a picture mode switching request from a call-accessed mobile phone; and transmitting previously stored picture data to the other person's mobile phone instead of the picture data transmitted from a communication terminal that requests the switching mode, according to the requested switching mode.

BRIEF DESCRIPTION OF THE DRAWINGS

The accompanying drawings, which are incorporated in and constitute a part of the specification, illustrate an embodiment of the invention, and, together with the description, serve to explain the principles of the invention:

FIG. 1 shows a network configuration for realizing a visual mode telephoning method using a mobile phone according to a preferred embodiment of the present invention;

FIG. 2 shows a detailed configuration of a visual mode mobile phone from the network configuration of FIG. 1; and

FIG. 3 shows a flowchart for a visual mode telephoning method using a mobile phone according to a preferred embodiment of the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

In the following detailed description, only the preferred embodiment of the invention has been shown and described, simply by way of illustration of the best mode contemplated by the inventor(s) of carrying out the invention. As will be realized, the invention is capable of modification in various obvious respects, all without departing from the invention. Accordingly, the drawings and description are to be regarded as illustrative in nature, and not restrictive.

With reference to drawings, a visual mode mobile phone and a visual mode telephoning method using the same will now be described in detail.

FIG. 1 shows a whole network configuration for realizing a visual mode telephoning method using a mobile phone according to a preferred embodiment of the present invention. It comprises a mobile network 200 including: a plurality of visual mode mobile phones 100X for transmitting previously stored moving pictures or still pictures; a plurality of mobile communication exchanges Ex; a plurality of base stations Pn; and a

subscriber register unit SR for storing information on the subscribers.

FIG. 2 shows a detailed configuration of the visual mode mobile phone 100X from the network configuration of FIG. 1. The visual mode mobile phone 100X comprises: a keypad 10 for inputting key functions including a picture mode selection and a picture mode switching; a keypad access unit 11 for accessing the keypad 10 and receiving key input data; an encoder 15 for encoding pictures taken and input in real-time into digital compression data; a picture select switch 20 for selecting one of the taken picture data and the previously stored picture data and outputting the same; an I/O (input/output) select switch 21 for storing or outputting picture data; a flash memory 30 for previously storing moving pictures or still picture data taken and input by a camera; a display 40 for displaying pictures and text; a ROM (read only memory) 50 for storing ESNs (electronic serial numbers) of the mobile phones 100X, MINs (mobile identification numbers), message data for indicating current call states, and menu screen data; a CODEC (coder-decoder) 70 for converting input digital audio data into analog audio signals, converting analog audio signals into digital audio data, and outputting converting results; an input amplifier 71 for amplifying analog audio signals input through a microphone to a predetermined level; an output amplifier 72 for power-amplifying the analog audio signals and outputting results to a speaker Sp; a decoder 75 for decoding received compressed picture data and outputting them to the display 40; a wireless receiver 80 for

wirelessly receiving data from a mobile communication network 200; a wireless transmitter 81 for wirelessly transmitting data to the mobile communication network 200; and an MSM (mobile station modem) 60 for controlling call processing, data modulation/demodulation according to a mobile communication protocol, picture and voice data splitting and synthesis, and data flows between configuration units.

FIG. 3 shows a flowchart for a visual mode telephoning method using a mobile phone according to the preferred embodiment of the present invention. Referring to the network configuration of FIG. 1 and the detailed configuration of FIG. 2, a visual mode telephoning method of FIG. 3 will now be described in detail.

In order to perform a visual mode telephoning method using a mobile phone according to the preferred embodiment of the present invention, it is required to previously store moving pictures or still pictures in the flash memory 30. To achieve this, a user presses a predetermined key (e.g., a "menu" key) on the keypad 10, and the MSM 60 accordingly checks the input state of the "menu" key through the keypad access unit 11, and outputs a menu screen configured from the menu screen data stored in the ROM 50 to the display 40.

The user selects a "picture store" function from the output menu screen, and the MSM 60 connects the picture select switch 20 to the terminal "a" and the I/O select switch 21 to the terminal "c" so as to perform the

"picture store" function.

Under this switches-connected status, the user photographs a predetermined picture using a camera, such as the pictures of the user's own facial gesture or smiling face, and the MSM 60 encodes the moving pictures or the still pictures taken and input by the camera into compressed digital data through the encoder 15, and stores them into the flash memory 30.

Together with this process, the user may select a picture mode through the keypad 10 in step S10, and in this instance, the user uses a "mode" key on the keypad 10 to select an "external picture mode" when attempting to transmit moving pictures externally taken and input in real-time or select an "assigned picture mode" when the user is indecent to transmit pictures in real-time by consideration of the user's present position (e.g., in a bathroom) or when the user intends to transmit previously stored moving pictures or still pictures. The MSM 60 memorizes the selected and assigned picture mode, and outputs the selected and assigned status to the display 40 so that the user may perceive the currently assigned picture mode.

Under the state that the flash memory 30 previously stores moving pictures or still pictures as described above, when the user attempts a telephone call in step S20 to input a telephone number (e.g., 01X-476-YYYY) of the corresponding target place using dial buttons on the keypad 10, the MSM 60 checks this number through the keypad access unit 11, and

transmits the target place's telephone number to the wireless transmitter 81 to thereby request a call access through an access channel.

When receiving the call access request data from the mobile phone 1001, the base station Pn transmits the telephone number of the call-access-requested target place to the accessed exchange Exn, and the exchange Exn uses the received target place telephone number to request a call from the other person's mobile phone 100n and generate a corresponding call access.

When the call access to the other person's call-access-requested mobile phone 100n is enabled in step S21, the MSM 60 controls the CODEC 70 to compress the voice input through the microphone into digital data, and checks the presently set picture mode, and when it is found to be an "external picture mode" in step S24, the MSM 60 selects the terminal "a" of the picture select switch 20 and the terminal "d" of the I/O select switch 21 to combine the taken picture data output from the terminal "d" of the I/O select switch 21 with the compressed digital voice data according to a predetermined protocol and transmit the combined data to the mobile communication network 200 through the wireless transmitter 81 in step S25. Therefore, the user may listen to voice or watch pictures from the other person's call-accessed mobile phone 100n or a terminal.

In the above-noted calling state, the user may check the current picture mode displayed on the display 40, and when the user checks the

current picture mode (e.g., an "external picture mode") through the display 40, determines that it is not adequate to transmit a taken picture, and attempts to modify the picture mode in step S30, the user presses again the "mode" key on the keypad 10 to change the picture mode to an "assigned picture mode" from the current "external picture mode" in step S40, and the MSM 60 accordingly connects the picture select switch 20 to the terminal "b", and reads the moving picture or still picture data previously stored in the flash memory 30 so that the moving picture or still picture data previously stored in the flash memory 30 instead of the real-time pictures taken from the present camera may be repeatedly and continuously transmitted to the other person's call-accessed mobile phone 100n in step S41.

When transmitting the previously stored moving pictures or the still pictures, the MSM 60 reads message data of "You are in the calling state." previously stored in the ROM 50, combines the same with the picture data, and transmits the combined data so that the above-noted message may be output from the other person's call-accessed mobile phone 100n and the other person may not misunderstand as if the calling state is interrupted or mixed with another call because of picture switching.

The wireless receiver 80 receives voice data and picture data from the other person's call-accessed mobile phone 100n, and provides them to the MSM 60. The MSM 60 divides the voice and picture data, and respectively provides them to the call CODEC 70 and the decoder 75. The

call CODEC 70 converts the compressed voice data into analog voice signals to output them through the speaker Sp, and the decoder 75 restores the received compressed picture data to picture signals, converts them into display output signals, and outputs them to the display 40, thereby enabling visual mode telephoning between the call-accessed persons.

Differing from the above-described preferred embodiment, the previously stored moving pictures or the still pictures may be transmitted to the other person during calling without storing the moving or still pictures in the user's mobile phone 1001 according to another preferred embodiment of the present invention. To realize this, the user previously registers data files that include desired pictures to a mobile communication exchange Exn or a subscriber register unit SR, and when a real-time picture transmission using a mobile phone 1001 is not possible, the user requests the exchange Exn to transmit the previously registered and stored moving pictures or the still pictures to the other person's call-accessed mobile phone 100n.

In further detail, when the present picture mode is the "external picture mode," the user transmits the pictures taken and input in real-time from a camera to the other person's mobile phone 100n as described above, and when the user uses the keypad 10 to change the picture mode to the "assigned picture mode" while calling the call-accessed other person, the MSM 60 transmits a predetermined code for requesting a transmission of the previously stored pictures, together with the user's ESN and telephone

number stored in the ROM 50 to the exchange Exn that presently forms a call path through the base station Pn of the mobile communication network 200.

The exchange Exn checks whether the predetermined code for indicating the transmission request of the previously stored pictures is provided in the data transmitted from the base station Pn, and when the code is found therein, the exchange requests the subscriber register unit SR to transmit the moving picture or still picture data registered and stored in connection with the received user's ESN and the predetermined code, or acquires them from a storage unit in the exchange to thereby exchange the picture data presently provided to the transmission-requested mobile phone 1001 for the above-noted moving or still picture data, provide the same to the call path, and transmit them to the other person's call-accessed mobile phone 100n or the currently-calling terminal.

In this instance, information such as a message that indicates a present calling state is combined with the picture data, and the combined data are then transmitted to the mobile phone or the terminal.

Also, the user may receive icon files or data files from an external device (e.g., a PC) through a port installed in the mobile phone instead of the pictures taken by the camera, store them in the flash memory 30, and transmit them to the other person.

The visual mode mobile phone and the visual mode telephoning

method using the same according to the preferred embodiments of the present invention allow the user to previously photograph the user's own poses (e.g., the user's gestures) or desirable pictures, store them in a storage device, and transmit a previously stored picture to another call-accessed person during calling the person, thereby generating more fun visual mode telephoning, and preventing the other person's upset emotion when the user is not decent to send pictures taken and input in real-time from the camera.

While this invention has been described in connection with what is presently considered to be the most practical and preferred embodiment, it is to be understood that the invention is not limited to the disclosed embodiments, but, on the contrary, is intended to cover various modifications and equivalent arrangements included within the spirit and scope of the appended claims.

WHAT IS CLAIMED IS:

1. A visual mode telephoning method using a mobile phone comprising:

(a) checking a selected picture mode from among picture modes of a visual mode mobile phone; and

(b) transmitting a previously stored moving picture or a still picture according to the checked picture mode.

2. The method of claim 1, wherein the picture mode is selected during calling.

3. The method of claim 1, wherein the picture mode is selected before call access.

4. The method of claim 1, wherein (b) comprises: further transmitting information for indicating a present calling state.

5. The method of claim 1, wherein (b) further comprises: displaying the checked present picture mode to the mobile phone.

6. A call providing method between visual mode terminals comprising:

(a) checking a request for picture mode switching from a call accessed mobile phone; and

(b) transmitting previously stored picture data to another person's mobile phone instead of the picture data received from the switching mode requesting mobile phone, according to the requested switching mode.

7. The method of claim 6, wherein (b) comprises: further transmitting information for indicating a present calling state.

8. The method of claim 7, wherein the information for indicating a present calling state is a message type.

9. A visual mode mobile phone comprising:

a storage unit for storing moving pictures or still pictures;

a picture mode selector for selecting one of the stored pictures and taken and input pictures; and

a transmitter for transmitting one of the stored pictures and the taken and input pictures to another person's mobile phone according to the selected picture mode.

10. The mobile phone of claim 9, wherein the storage unit further stores information for indicating a present calling state.

11. The mobile phone of claim 9, further comprising: a display for displaying a present picture mode selected through the picture mode selector.

FIG.1

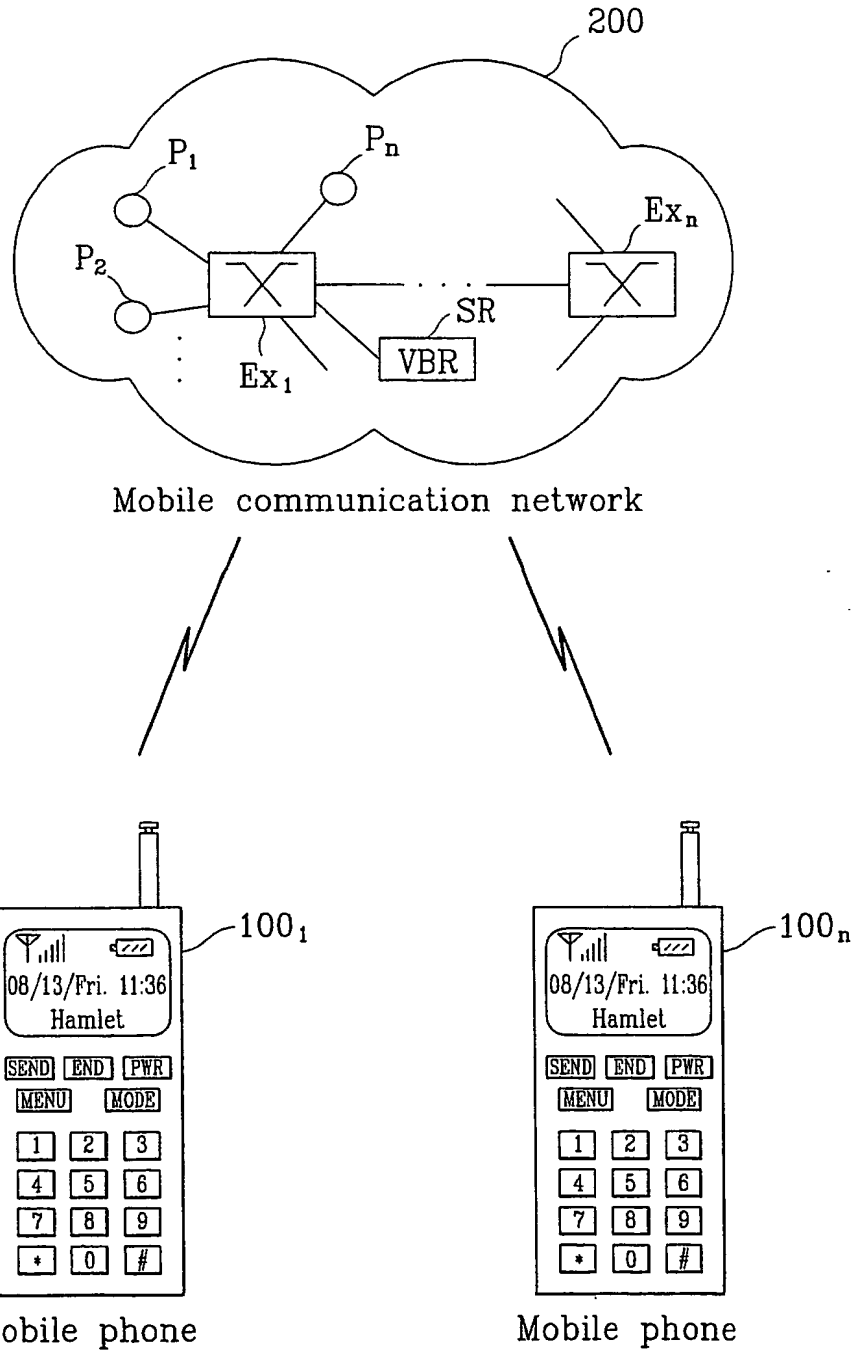

200
P1
Pn
Exn
P2
SR
VBR
Ex1
Mobile communication network
100 1
08/13/Fri. 11:36
Hamlet
SEND END PWR
MENU MODE
1 2 3
4 5 6
7 8 9
* 0 #
Mobile phone
100 n
08/13/Fri. 11:36
Hamlet
SEND END PWR
MENU MODE
1 2 3
4 5 6
7 8 9
* 0 #
Mobile phone

FIG.2

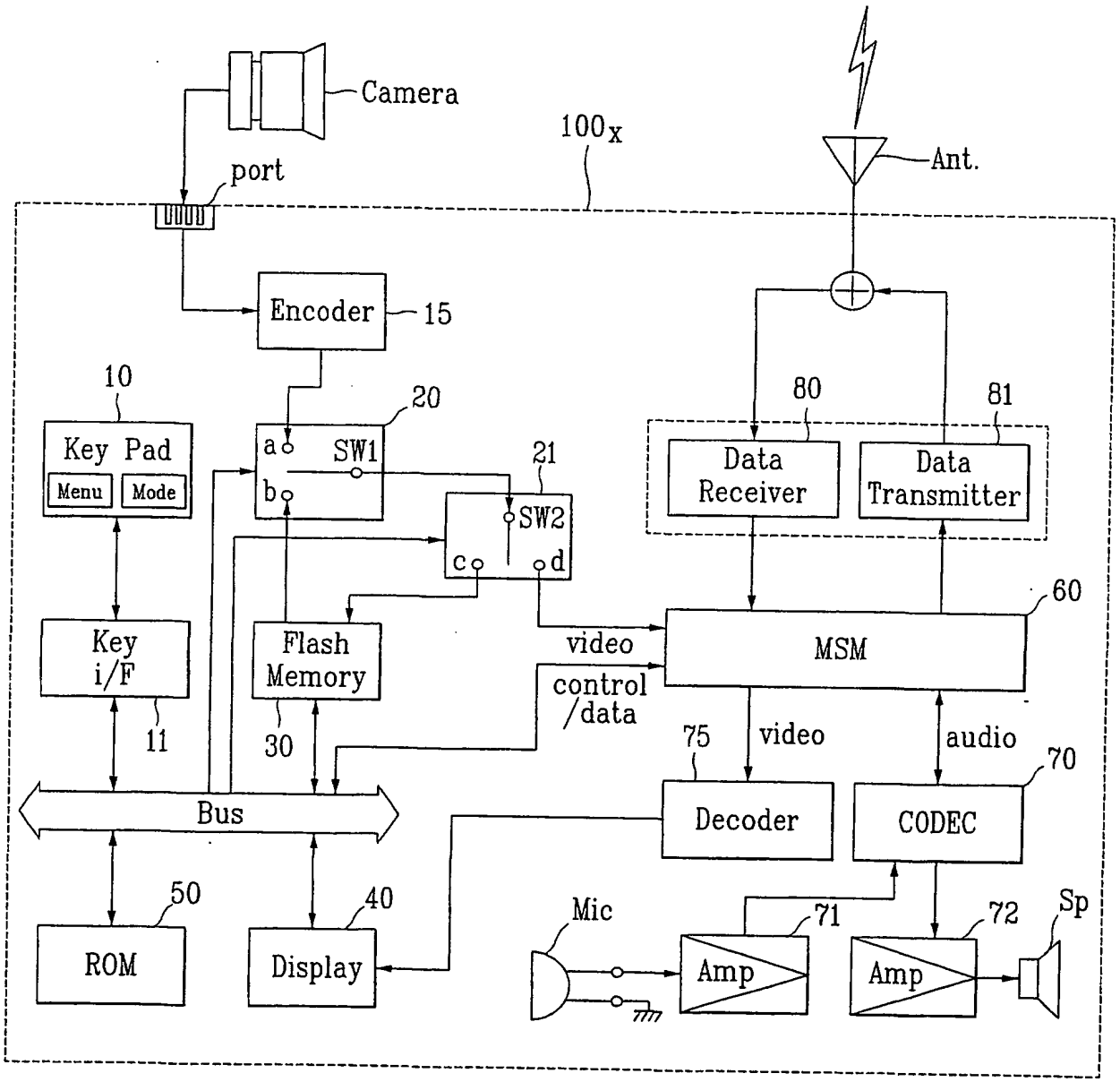
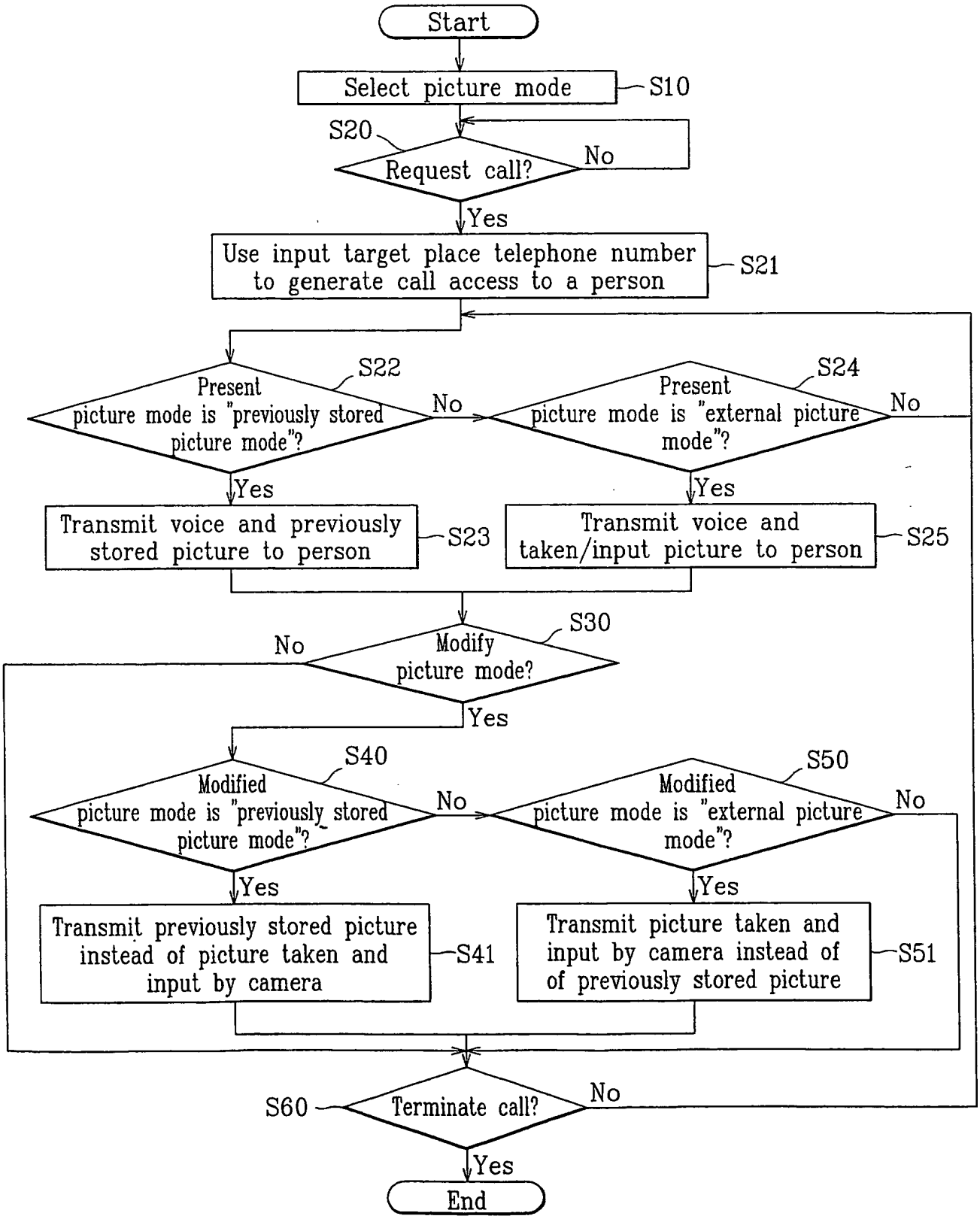


FIG.3


Start
Select picture mode
S10
S20
Request call?
No
Yes
Use input target place telephone number to generate call access to a person
S21
S22
Present picture mode is "previously stored picture mode"?
No
Yes
Transmit voice and previously stored picture to person
S23
S24
Present picture mode is "external picture mode"?
No
Yes
Transmit voice and taken/input picture to person
S25
S30
Modify picture mode?
No
Yes
S40
Modified picture mode is "previously stored picture mode"?
No
Yes
Transmit previously stored picture instead of picture taken and input by camera
S41
S50
Modified picture mode is "external picture mode"?
No
Yes
Transmit picture taken and input by camera instead of of previously stored picture
S51
S60
Terminate call?
No
Yes
End

INTERNATIONAL SEARCH REPORT

International application No.
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A. CLASSIFICATION OF SUBJECT MATTER

IPC7 H04N 7/14

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7 H04N 7/14

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Korean Patents and applications for inventions since 1975, Korean Utility models and applications for Utility models since 1975.
Japanes Utility models and applications for Utility models since 1975.

Electronic data base consulted during the intertnational search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	JP 2000-175166(Canon Inc.) 23 June 2000 see the whole document	1 - 11
Y	JP 63-127685(Mitsubishi Electric Co.) 31 May 1988 see the whole document	1 - 11
Y	KR 1994-13234(Samsung Electronics Co.) 25 June 1994 see the whole document	1 - 11

☐ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

* Special categories of cited documents:

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Date of the actual completion of the international search	Date of mailing of the international search report
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